California State Assembly

UTILITIES AND ENERGY

CHRIS HOLDEN
CHAIR

State Capitol, P.O. Box 942849
(916) 319-2083
FAX: (916) 319-2099

INFORMATIONAL HEARING

Beyond New Construction: Decarbonizing California's Existing Building Stock

Wednesday, August 25
1:30 p.m. -- State Capitol, Assembly Chamber

The state of California has adopted ambitious policies[1] to reduce greenhouse gas (GHG) emissions as part of its overarching climate change and air quality goals. These policies touch on all sectors of California's economy, from industrial manufacturing and electricity generation, to buildings, transportation, and agriculture. Of these sectors, residential and commercial buildings account for roughly 25% of the state's GHG emissions.[2] Building decarbonization is the process of reducing or eliminating GHG emissions from buildings, and current solutions broadly encompass measures that reduce energy usage or eliminate natural gas in buildings.

Building decarbonization policies have primarily focused on new construction. Through the use of statewide building codes or local reach codes, the efforts in new construction have emphasized building electrification – replacing natural gas appliances with electric ones. However, these efforts alone are not enough to address the major source of GHGs emitted from the state's existing buildings. The majority of current California housing was built before 1980,[3] while the first statewide building energy efficiency standards took effect in 1978. By 2030, fewer

[1] SB 32 (Pavley, Chapter 249, Statutes of 2016) required the State Air Resources Board (ARB) to reduce statewide GHG emissions to at least 40% below the 1990 emissions level by 2030.
[2] https://ww2.arb.ca.gov/our-work/programs/building-decarbonization
[3] California Department of Housing and Community Development. *California's Housing Future: Challenges and Opportunities, Final Statewide Housing Assessment 2025*. February 2018.

than 10% of residential buildings will have been built following 2019 or later Building Energy Efficiency Standards (Energy Codes).[4]

The question before the state is how best to move our strategy beyond new construction, in order to find solutions to increase building decarbonization efforts in existing buildings. What may make financial sense or increase efficiencies in new construction may not be effective for existing buildings. Recent efforts by the Legislature and state agencies have begun to lay the groundwork for achieving this work. Last month, the California Energy Commission (CEC) released the *AB 3232 California Building Decarbonization Assessment Report (AB 3232 Report)*, which outlines key strategies for decarbonizing existing building stock, including building electrification, energy efficiency improvements, and decarbonizing the gas system.[5]

It is crucial that existing buildings are decarbonized in order to meet our climate change goals. How we get there, and what tools may best serve the effort, is the topic of this informational hearing. The hearing will provide an overview of proposed solutions, and discuss the available paths and challenges ahead for decarbonizing existing buildings.

Findings

- *The majority of building GHG emissions come from existing building stock, while most decarbonization policies have focused on electrification of new buildings. Decarbonizing existing buildings is necessary to meet the state's climate change and air quality goals, but there are significant cost barriers to achieving this.*

- *Decarbonization is not synonymous with electrification. Building decarbonization requires several strategies that combine to reduce both demand-side and supply-side sources of a building's GHG emissions. These range from updates to energy codes, improvements to energy efficiency standards, and substituting natural gas with electricity or renewable gas in appliances or machinery.*

- *Ensuring cost-efficiency and equity will be crucial for overcoming cost barriers and successfully decarbonizing the state's existing buildings. The transition away from natural gas will impact natural gas infrastructure and ratepayers, and must also be carefully managed.*

Why Decarbonize the Building Sector? California has adopted ambitious climate change policies with goals of significantly reducing the state's GHG emissions. AB 32 (Nunez, Chapter 488, Statute of 2006) required California to reduce its GHG emissions to 1990 levels by 2020. Having achieved this goal in 2016, the state adopted SB 32 (Pavley, Chapter 249, Statutes of

[4] California Energy Commission. *California Building Decarbonization Assessment*. CEC-400-2021-006-SD. August 2021.
[5] Ibid.

2016), which requires California to reduce GHG emissions to 40% below 1990 levels by 2030. Meeting these requirements relies on significant emissions reductions in all sectors of the economy (e.g. transportation, agriculture, heavy industry), but a key part of reducing California's GHG emissions by 2030 will be through its building sector. Residential and commercial buildings emit roughly 25% of California's GHGs when accounting for fossil fuels and electricity consumed onsite[6] (Fig. 1), and about 10% of the state's GHG emissions are due to natural gas use in buildings.[7] Decarbonizing the building sector can achieve significant GHG emissions reductions, and is crucial for the state's ability to meet its climate change goals.

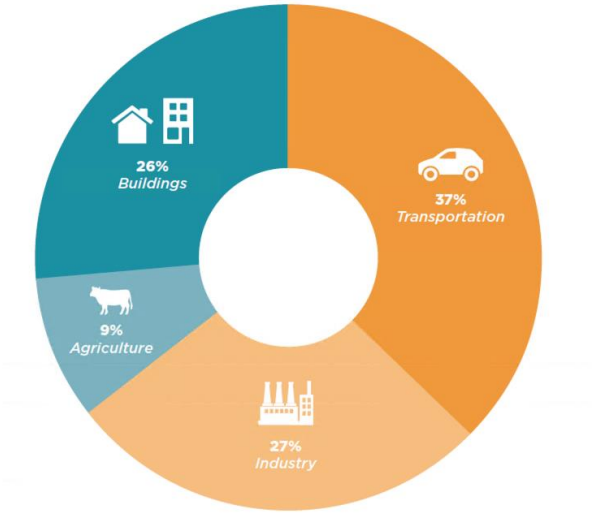


Figure 1. California's GHG emissions by sector[8]

California's Diverse and Aging Buildings. It is important to understand the characteristics of California's building stock when considering building decarbonization, as measures to reduce a building's GHG emissions are based on the building's infrastructure and pattern of energy consumption. The building sector can be categorized in several ways, including but not limited to:

- residential vs. commercial,
- single-family vs. multi-family,
- climate zones, and
- sub-categories for commercial buildings (e.g. schools, warehouses, retail outlets).

Both commercial and residential building sectors are diverse (Figs. 2, 3). As outlined in more detail below, different types of buildings have different electricity and natural gas needs, and the solutions for reducing GHG emissions will depend on the building's infrastructure and end-use.

[6] California Air Resources Board. *California Greenhouse Gas Emission Inventory: 2000-2017, 2019 Edition*. 2019.
[7] Ibid.
[8] Building Decarbonization Coalition. *A Roadmap to Decarbonize California Buildings*. 2019.

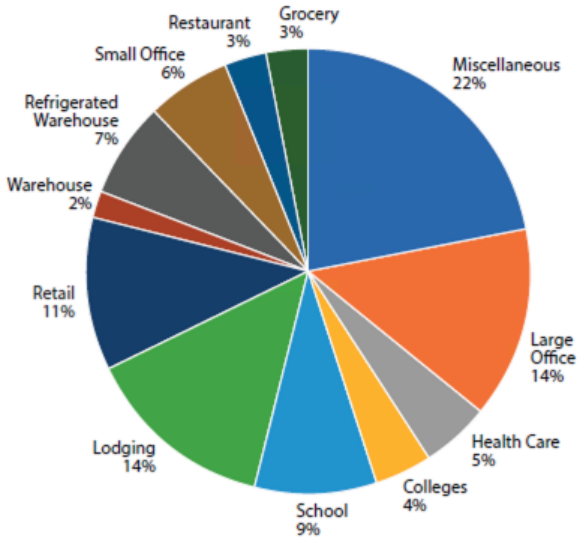


Figure 2. California Commercial Floor Space by Building Type[10]

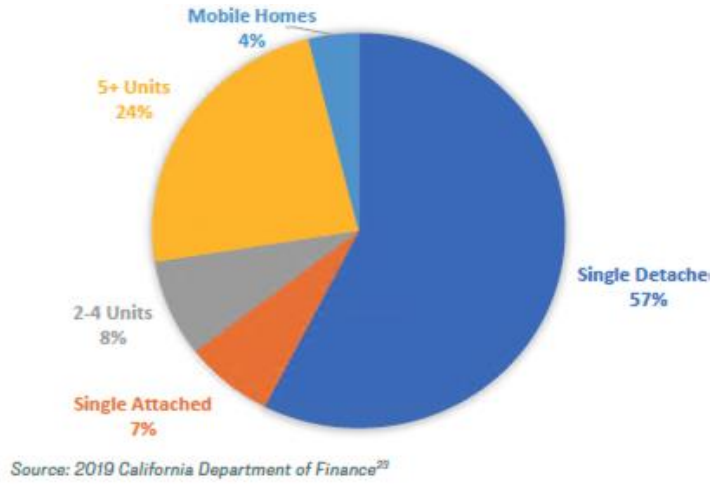


Figure 3. California Housing Units by Structure[9]

The vast majority of the building stock in the state was built before 1980 (Fig. 4). More than 75% of California's existing buildings were built before the state's energy efficiency standards were first developed in 1978.[11] While the building codes are updated every three years, building owners are not required to update their properties as the code changes unless the property undergoes a rebuild or major remodel. As a result, a majority of the building stock may not be sufficiently weatherized, designed for efficient energy consumption, or built to accommodate large electric loads. It is projected that the majority of California's housing stock will still use natural gas by 2025, depending on the pace of residential construction and natural gas phase-out in those new homes.[12]

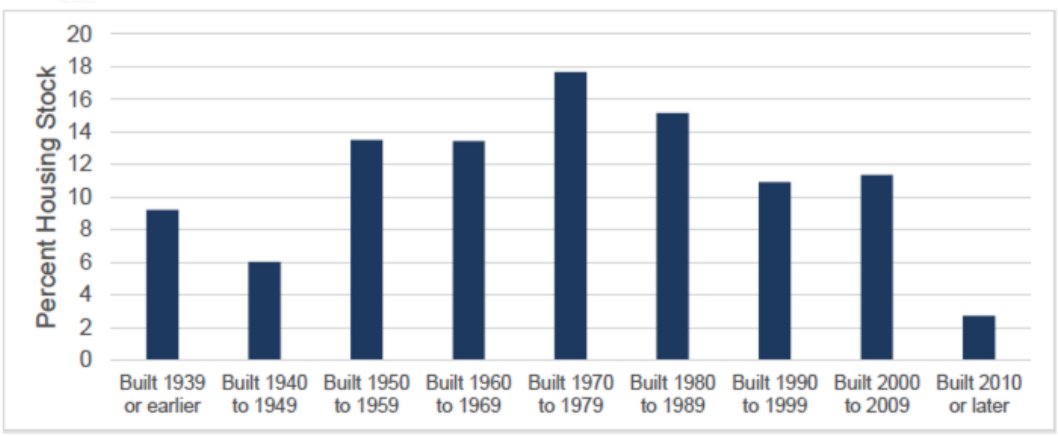
[9] Jones, B., Karpman, J., Chlebnikow, M., Goggans, A. *California Building Decarbonization: Workforce Needs and Recommendations. UCLA Luskin Center for Innovation*. Nov. 2019. p. 9. https://innovation.luskin.ucla.edu/wp-content/uploads/2019/11/California_Building_Decarbonization.pdf

[10] Ibid. p. 14.

[11] California Air Resources Board. "Existing Buildings". https://ww2.arb.ca.gov/our-work/programs/building-decarbonization/existing-buildings. Accessed on August 18, 2021.

[12] Jones, B., Karpman, J., Chlebnikow, M., Goggans, A. *California Building Decarbonization: Workforce Needs and Recommendations. UCLA Luskin Center for Innovation*. Nov. 2019.

Figure 4. Percent Housing Stock by Construction Year[13]



Source: U.S. Census Bureau, 2018 American Community Survey 5-year estimates, DP04

Multiple Building Types Necessitate Multiple Solutions. Building GHGs arise from two main sources. First, the electricity used in buildings is currently the largest contributor to building GHG emissions. However, with the passage of SB 100 (De León, Chapter 312, Statutes of 2018), California's electric utilities are mandated to meet 60% of their retail electricity supply with renewable sources of power by 2030, and the remaining 40% from zero-carbon resources by the end of 2045. These ambitious electric sector targets will likewise reduce the GHG accounting in the housing sector. Second, natural gas combustion (e.g. gas stoves, space and water heating) contributes the next largest source of GHG emissions.[14] Efforts to reduce natural gas usage include building electrification (switching from natural gas appliances to electric appliances) and decarbonizing the natural gas supply (via fuel mixing or switching with renewable natural gas or hydrogen).

Additionally, the leading source of GHG emissions varies between types of buildings. In single-family homes, space heating is the leading source of GHG emissions, while water heating is the leading source in multi-family homes, depending on the local climate.[15] In commercial buildings, space and water heating and cooking are the leading sources of GHG emissions, but vary widely depending on the type of structure (i.e. office spaces vs restaurants). Multiple strategies will inevitably need to be deployed to address these varying emission sources.

This showcases that building decarbonization efforts must encompass a wide range of solutions, and must recognize a building's energy needs and infrastructure. These solutions can be enacted

[13] California Department of Housing and Community Development. *California's Housing Future: Challenges and Opportunities, Final Statewide Housing Assessment 2025*. February 2018, p. 17. https://www.hcd.ca.gov/policy-research/plans-reports/docs/sha_final_combined.pdf
[14] California Energy Commission. *California Building Decarbonization Assessment*. CEC-400-2021-006-SD. August 2021.
[15] Ibid. p. 3.

to reduce GHG emissions from either the energy supply coming into the building or the demand-side consumption within the building. Examples of supply-side measures include the electric utilities meeting their SB 100 goals, installation of rooftop solar panels or batteries, and decarbonizing the bulk natural gas system by transitioning to renewable natural gas or carbon-neutral hydrogen. Examples of demand-side measures include retrofits to increase energy efficiency, building electrification (assuming the supply-side measures are met), and using appliances capable of shifting electricity usage to certain times of day. The CEC outlines these and others solutions in their *AB 3232 Report*, which highlights the need for a combination of strategies to account for the diversity in the state's existing building stock.

Barriers to Decarbonizing Existing Buildings. As noted previously, building code updates greatly improve decarbonization efforts in *new* construction, where buildings can be optimized from the start to be highly energy-efficient, and accommodate electric appliances, rooftop solar panels, and/or energy storage. The CEC is required by statute to adopt energy efficiency building standards that are cost-effective, meaning over the 30-year lifespan of a building the occupants actually save money or are held even.[16] The CEC recently adopted the 2022 Energy Code for newly constructed and renovated buildings.[17] Alongside the CEC's efforts in decarbonizing new construction, nearly 50 local municipalities in California have taken steps to decarbonize buildings by enacting Reach Codes, or local building energy codes, which go beyond state minimum requirements by placing natural gas moratoriums in new construction or requiring new buildings be all-electric. Appendix 1 below lists the various municipalities that have adopted Reach Codes as of January 30, 2021.[18]

However, these efforts have thus far singled out *new* construction. Significant barriers remain for decarbonizing *existing* buildings. As described above, the diversity and age of the state's building stock means that there is no "one-size-fits-all" solution for decarbonizing a building. The favored strategy for new construction—building electrification—faces complications and significant cost barriers for existing buildings, as noted in Box 1 on San Francisco's efforts to examine such electrification.

[16] These measures are listed in Title 24, Part 6 of the California Code of Regulations. For the latest cost-effectiveness study, see the 2019 report here: https://localenergycodes.com/download/73/file_path/fieldList/2019%20Res%20NC%20Cost-eff%20Report

[17] Among the updates included in the 2022 codes are electric heat pump technology for space and water heating, solar power and battery storage in new commercial and high-rise residential projects, and electric-ready requirements for single-family homes. See: https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency

[18] An updated list may be found may on the Sierra Club's website here: https://www.sierraclub.org/articles/2021/07/californias-cities-lead-way-gas-free-future

Older buildings are less likely to have adequately sized electric panels for new electric loads, insufficient insulation for holding cooling or heating, or necessary structural integrity to support rooftop solar panels. Additionally, older buildings may have structural or design issues requiring additional structural remodels that make electrification more costly.

The price of electricity may make building electrification less desirable for consumers, as the unit cost of electricity is currently higher than the unit cost of natural gas.[19] Labor may also pose a cost barrier, as some retrofits require workforce training. The availability and cost of technology also pose challenges for electrification. Electric heat pumps, for example, comprise just 1% of the state's current heating market.[20]

Beyond cost, consumer needs and behaviors pose some challenges for electrification efforts. Residential occupants may have a preference for gas cooking.[21] Resistance has also arisen from some commercial sectors to electric appliances mandates.[22] For occupants of multi-family or rental housing, most tenants lack control over appliances and face potential displacement during retrofit work. Additionally, building owners do not yet have a clear monetary incentive to electrify or retrofit their rental properties.

Box 1: *Case Study* - San Francisco

In 2019, San Francisco laid out a plan to achieve net zero emissions by 2050. Natural gas use in buildings accounts for ~38% of San Francisco's GHG emissions according to the San Francisco Department of the Environment.

In 2020, the S.F. Board of Supervisors unanimously banned natural gas in *new* buildings. However, the larger portion of GHG emissions—arising from *existing* buildings—remained to be addressed.

In response, in April 2021 a policy report was released examining the elimination of natural gas use in existing residential buildings, by replacing gas-fueled appliances with electric.* **That report found electrifying more than 240,000 gas-powered housing units in San Francisco could cost between $3.5-$5.9 billion**.

The key barrier, the report noted, was the financial burden such an approach would place either on property owners and/or the City and County of San Francisco, should the City choose to subsidize or fund such retrofits. The report also noted that such efforts would take decades to achieve the desired GHG reductions.

The committee is unaware of action taken to date to eliminate natural gas usage in existing buildings in the City.

*https://sfbos.org/sites/default/files/BLA.ResidentialDecarbonization.042221.pdf

[19] Pg. 3, S. Borenstein and J. Bushnell, "Headwinds and Tailwinds: Implications of Inefficient Retail Energy Pricing for Energy Substitution," *Energy Institute White Paper 319R*, revised July 2021.
[20] Woody, Todd. "How your water heater can be a secret weapon in the climate change fight". Bloomberg. February 11, 2021.
[21] "Visions Home Preference Survey," Administered by Southern California Gas, July 2014, https://www.socalgas.com/for-your-business/builder-services/visions-home-preference-survey.
[22] In 2019, the California Restaurant Association sued the city of Berkeley for its natural gas moratorium in new construction.

Strategies beyond electrification are available, but the barriers to these are also largely related to cost. Decarbonizing the natural gas system, or switching to renewable gas and/or renewable hydrogen is one such avenue. However, one CEC study showed that widespread building electrification remains a lower-cost, lower-risk long-term strategy compared to renewable gases, due to the cost of producing renewable natural gas and carbon-neutral hydrogen.[23] Nonetheless, the study authors found that residual gas demands will likely remain, even in a low-carbon future, and that these demands will have to be met with renewable gas or hydrogen to meet the state's climate goals. In their *AB 3232 Report*, the CEC also noted that renewable natural gas and hydrogen will be viable options for sectors least able to electrify, such as certain heavy industries. These suggest that a decarbonized natural gas system will likely play an important role in the state's energy system, though how that is incorporated into the building sector's energy consumption will depend on the future cost of renewable natural gas and hydrogen relative to the cost of electricity.

Energy efficiency has been a long-standing strategy by the state to maximize energy savings for ratepayers and tackle GHG emissions. Since the state's energy efficiency policies first went into effect in the late 1970s, appliance and buildings standards have saved consumers more than $100 billion in utility bills.[24] As a result of these successes, energy efficiency will likely continue to play an important part in building decarbonization efforts. Combined energy efficiency and electrification measures are projected to reduce residential natural gas demand between 25% and 90% by 2050.[25] The cost of retrofitting buildings to meet updated energy efficiency standards can vary widely depending on the building's specific traits. Measures can be as simple as adding caulking around windows or as costly as upgrading a building's electrical panel. As is the case for electrification, the challenges of enacting widespread energy efficiency standards for existing buildings are related to the diversity of the state's building stock and the wide-ranging costs of retrofitting older buildings.

The challenges of these approaches demonstrate that there is no one silver bullet for decarbonizing the state's buildings. Policies must address the cost barriers that arise from the diverse traits of existing buildings. The path forward will benefit from a multi-pronged approach implementing a combination of the outlined strategies.

Who's Looking Out for the Ratepayer? The cost barriers to building decarbonization highlight the need for equitable policies prioritizing low-income households, renters, and others least able to adopt decarbonization efforts. As described above, building decarbonization is costly and not

[23] Aas, D., Mahone, A., Subin, Z., MacKinnon, M., Lane, B., and Price, S. *The Challenge of Retail Gas in California's Low-Carbon Future: Technology Options, Customer Costs and Public Health Benefits of Reducing Natural Gas Use*. California Energy Commission. Publication Number: CEC-500-2019-055-F. April 15, 2020.
[24] California Energy Commission. *2019 California Energy Efficiency Action Plan*. CEC-400-2019-010-SF. November 2019.
[25] Aas, D., Mahone, A., Subin, Z., MacKinnon, M., Lane, B., and Price, S. *The Challenge of Retail Gas in California's Low-Carbon Future: Technology Options, Customer Costs and Public Health Benefits of Reducing Natural Gas Use*. California Energy Commission. Publication Number: CEC-500-2019-055-F. April 15, 2020.

readily accessible for many building occupants and owners, and these inequities can be further compounded if the transition away from natural gas is not carefully managed. The state has many programs aimed at addressing these inequities. Relevant examples include the California Public Utilities Commission's (CPUC) Energy Savings Assistance Program (ESAP), which funds energy efficiency upgrades in eligible low-income residential homes and multifamily housing, and Self-Generation Incentive Program (SGIP), which provides incentives and rebates for distributed energy systems installed at residential and non-residential buildings, with allocations for lower-income, medically vulnerable, and at-risk-for-fire communities. As important as these programs are, their impact is limited to the small percentage of participants able to access their funds.

Another concern for ratepayers is the potential for existing infrastructure to become stranded if the consumption of natural gas declines rapidly. This may leave an ever-shrinking portion of ratepayers having to bear the cost of maintaining a system built for a much larger customer pool, likely disproportionately impacting ratepayers least able to transition off of gas.[26] Some have hypothesized that this shrinking could trigger a feedback effect, where rising gas rates caused by electrification and falling demand can spur additional electrification, further exacerbating the cost burden and potentially threatening the financial viability of the gas system.[27] Branch pruning, or strategic electrification of entire geographic areas, is one possible avenue that could achieve greater levels of emissions reductions while protecting communities from spiraling utility costs.[28] However, "there are currently multiple unknowns concerning execution of such a complex, long-term policy," requiring careful planning between local and state authorities, utilities, and community groups.[29] Additionally, replacing natural gas with alternatives, such as renewable natural gas or hydrogen, may mitigate some of this harm by prolonging the life of the gas system; but, as discussed above, these are also costly solutions.

Groundwork for Future Planning. Recent efforts by the Legislature and agencies have begun to more fully examine decarbonizing existing buildings. AB 758 (Skinner, Chapter 470, Statutes of 2009) required the CEC to develop a program to achieve greater energy efficiency and savings in the state's existing residential and nonresidential building stock. SB 350 (De León, Chapter 574, Statutes of 2015) set the goal to double energy efficiency savings and demand reductions in electricity and natural gas end us by January 1, 2030; and directed the CEC to set annual targets to accomplish it. The CEC's most recent *Energy Efficiency Report* was released in 2019, and

[26] L. Davis and C. Hausman, "Who Will Pay for Legacy Utility Costs?" *Energy Institute White Paper 317*, June 2021.
[27] Aas, D., Mahone, A., Subin, Z., MacKinnon, M., Lane, B., and Price, S. *The Challenge of Retail Gas in California's Low-Carbon Future: Technology Options, Customer Costs and Public Health Benefits of Reducing Natural Gas Use*. California Energy Commission. Publication Number: CEC-500-2019-055-F. April 15, 2020.
[28] Ong, A., Mastrandrea, M., and Wara, M. *The Costs of Building Decarbonization Policy Proposals for California Natural Gas Ratepayers: Identifying Cost-effective Paths to a Zero Carbon Building Fleet*. Stanford Woods Institute Climate and Energy Policy Program White Paper. June 2021.
[29] Ibid. p. 15.

provides an action plan for doubling energy efficiency savings, removing barriers to energy efficiency in low-income and disadvantaged communities, and reducing GHG emissions from the building sector.[30]

AB 3232 (Friedman, Chapter 373, Statutes of 2018) required the CEC to assess the potential for the state to reduce emissions of greenhouse gases from residential and commercial building stock by at least 40% below 1990 levels by January 1, 2030. Many of the strategies called out in the *AB 3232 Report* mirror those mentioned in the *Energy Efficiency Report*. SB 1477 (Stern, Chapter 378, Statutes of 2018) directed the CPUC to develop and oversee a program to accelerate the development of low-emission space and water heating equipment technologies for new and existing buildings (Technology and Equipment for Clean Heating, or TECH), which recently launched in August 2021. The CPUC additionally has ongoing Building Decarbonization Proceedings,[31] oversees programs to support building electrification,[32] and is actively examining integrating decarbonized gas fuels to reduce GHG emissions from natural gas use in buildings.[33]

It is an understatement to say that California is undergoing a rapid transformation of its energy usage, driven by climate change, technology, and consumer preference. It is crucial that existing buildings are part of this decarbonization transformation in order to meet our climate change goals. Policies moving forward will need to expand on ongoing agency efforts in order to successfully overcome the technological and cost barriers to decarbonizing existing building stock. Programs like TECH that accelerate market readiness for cost-effective low-emissions appliances, or provide incentives for residents and building owners to retrofit their homes, can reduce cost barriers for building decarbonization. But these measures must be planned and implemented with long-term, system-wide needs in mind, such as maintaining grid reliability as more sectors are increasingly electrified. The state must also be mindful of the potential for stranded assets, and develop solutions to mitigate the potential harm. Despite the obstacles ahead for decarbonizing the existing building stock, the state is well-positioned to address its climate change goals in the building sector with careful and timely measures.

[30] California Energy Commission. 2019 Energy Efficiency and Building Decarbonization (Docket Log 19-IPER-06). https://efiling.energy.ca.gov/GetDocument.aspx?tn=231261&DocumentContentId=62916
[31] R. 19-01-011
[32] ESAP, SGIP
[33] Renewable Natural Gas Proceeding, R.13-02-008. Dairy Biomethane Pilots R.17-06-015

Appendix 1 – Approved Zero Emission Building Codes in California as of 01/30/2021[34]

Jurisdiction	Approach			Systems			Building Types								Add-Ons	
	Natural Gas Infrastructure Moratorium	All-Electric Reach	Electric-Preferred	Whole Building	Water Heating	Space Heating	Low Rise Residential	City-Owned Properties	High Rise REsidential	Hotel	Retail	Office	Restaurant	Life Sciences	Additional Solar	Electric Vehicles
Alameda	X			X				X								
Albany			X				X				X	X			X	X
Berkeley*	X		X	X			X	X	X	X	X	X	X	X	X	X
Brisbane		X			X	X	X	X	X	X	X	X	X			X
Burlingame		X		X	X	X	X	X	X	X	X	X		X		X
Campbell		X			X	X	X									X
Carlsbad	X	X			X		X								X	X
Cupertino		X		X			X	X	X	X	X	X	X			X
Davis			X	X			X									
East Palo Alto		X		X			X	X	X	X	X	X		X		X
Hayward		X	X	X			X	X	X	X	X	X	X	X	X	X
Healdsburg		X			X	X	X	X	X	X	X	X	X	X		
Los Altos		X		X	X	X	X	X	X	X	X	X				X
Los Altos Hills		X			X	X	X	X	X	X	X	X	X			
Los Gatos		X		X			X									X
Marin County			X	X			X	X	X	X	X	X	X	X		X
Menlo Park		X			X	X	X	X	X	X	X	X	X		X	X
Millbrae		X			X	X	X	X	X	X	X	X	X	X		X
Mill Valley			X	X			X		X							X
Milpitas			X	X			X	X	X	X	X	X	X	X		X
Morgan Hill	X			X			X	X	X	X	X	X	X	X		
Mountain View		X		X			X	X	X	X	X	X	X		X	X
Oakland		X		X			X	X	X	X	X	X	X	X		
Ojai		X		X			X	X	X	X	X	X		X		

[34] List from the Building Decarbonization Coalition website. Updates to these data may be found on the Sierra Club's website here: https://www.sierraclub.org/articles/2021/07/californias-cities-lead-way-gas-free-future

Pacifica		X			X	X	X	X	X	X	X	X	X		X	X
Palo Alto		X	X	X			X	X	X	X	X	X	X	X		X
Piedmont		X		X			X								X	
Redwood City		X		X			X	X	X	X	X	X				X
Richmond		X		X	X	X	X	X	X	X	X	X				X
San Anselmo			X	X			X	X	X	X	X	X	X	X		
San Francisco*	X		X	X			X	X	X	X	X	X	X	X	X	X
San Jose*	X			X			X	X	X	X	X	X	X	X	X	X
San Luis Obispo			X	X			X	X	X	X	X	X	X	X	X	
San Mateo*		X		X			X		X			X			X	X
San Mateo County		X		X			X	X	X	X	X	X	X			X
Santa Cruz	X			X			X	X	X	X	X	X		X		
Santa Monica			X	X			X	X	X	X	X	X	X	X	X	X
Santa Rosa		X		X			X									
Saratoga		X			X	X	X	X	X	X	X	X	X	X		X
Sunnyvale		X		X			X	X	X	X	X	X	X	X		X
Windsor		X		X			X									

*Multiple Ordinances Passed